Next Generation Airborne Electronic Attack

At a Glance

What is it?

- Next Generation Airborne Electronic Attack (NGAEA) is a Future Naval Capability (FNC) project developing high-risk, high-payoff technologies for the Navy's Next Generation Jammer (NGJ).

How does it work?

- NGAEA is advancing the technology readiness of broadband radio frequency (RF) antenna arrays; high power solid state RF power amplifiers; RF beam formers; and advanced RF exciters (i.e. techniques generators) in support of Navy and Marine Corps airborne electronic attack missions.

What will it accomplish?

- New EW technologies will ensure the survivability of aircraft, provide increased threat awareness, counter enemy RF-based systems and support operations against asymmetric threats

Point of Contact

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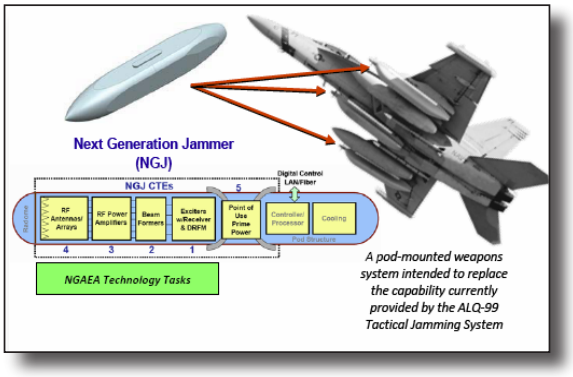

A pod-mounted weapons system intended to replace the capability currently provided by the ALQ-99 Tactical Jamming System

The NGAEA project will enable improved airborne electronic attack capabilities across a broad range of missions, including suppression of enemy air defenses and denial of communications systems. These capabilities support the full spectrum of conflict including conventional and irregular warfare. NGAEA technologies will help yield a NGJ system capable of providing 21st century information dominance through control of the electromagnetic spectrum. An early emphasis on modular and open architecture design will lead to an adaptable and affordable weapons system capable of evolving to meet warfighter needs in the future.

There are four task areas that define NGAEA.

(1) Antenna array technologies that cover wide RF bandwidths, operate at high power levels, and are small and light weight. Improved functional capabilities include increased number of jamming assignments, increased effective radiated power (ERP), enhanced reliability and reduced manufacturing cost.

(2) RF power amplifier technologies that cover wide RF bandwidths, produce high power output, operate in both saturated and linear modes, have high spectral purity, are small in size and highly reliable. Improved functional capabilities include increased ERP and increased number of jamming assignments.

(3) Beam-former technologies that cover wide RF bandwidths, produce multiple simultaneous beams, operate at high speed and are smaller, lighter and more power efficient than currently available analog and digital systems. Improved functional capabilities include greatly increased control of jamming beams, which provides improved effectiveness, increased number of jamming assignments and reduced fratricide.

(4) Exciter technologies that provide ultra-wide band direct digital synthesis, enable software-defined techniques and incorporate integrated cueing receiver/digital radio frequency memory functionality for highly effective and flexible techniques generation. Improved functional capabilities include increased effectiveness and number of jamming assignments, greater adaptability to counter emerging threats and improved spectral purity for reduced fratricide.

Research Challenges and Opportunities:

- Broadband, high-power RF power amplifiers
- Broadband antenna array elements and beam control
- Packaging and thermal management

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